0010

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

May 26, 2004 OK

TO: Internal File

THRU: Karl R. Houskeeper, Environmental Scientist III, Team Lead KRH by cn

FROM: Wayne H. Western, Environmental Scientist III/Engineering WHW

RE: Proposed Mining Alternatives, Sunnyside Cogeneration Association, Star Point Refuse, C/007/042, Task ID #1885

SUMMARY:

On March 24, 2004, the Division received amendment #1885, Proposed Mining Alternatives for the Star Point Refuse site. Sunnyside Cogeneration Association (SCA) wanted to modify the mining methods. Instead of removing the material from the top of the pile, SCA wants to remove the material from the sides. SCA also wanted to build another primary road to facilitate the alternative mining method.

The Division found the amendment deficient and listed the deficiencies in the appropriate sections of the Technical Analysis.

TECHNICAL ANALYSIS:

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

SCA estimated they would mine between 100,000 CY to 300,000 CY of material every year with the average being approximately 200,000 CY. Table 523.100a relates the tonnage of coal mine waste to be moved as 200,000 tons/year which equates to 833 tons/day, 104 tons/hour, 15 truck trips/day or two trucks an hour.

Three refuse piles (A, B, and C) are illustrated on Maps 521.100d, 521.100, 521.100e2 and 731.120b. Maps 521.100d, 521.100e, and 521.100e2 showed the sequence of mining (Section 521).

SCA included two mine plans in the amendment. They showed the first mine plan on Map 521.100e. That plan calls for removing the refuse from pile A by a top down approach. PMC showed the second plan on Map 521.100e2 which calls for mining from the sides into refuse pile A.

The two plans appear inconsistent. If both plans were in the mining and reclamation plan (MRP), the Division would not know which plan to use during inspections.

The information on Map 521.100e2 is not consistent. The maps show that during the first five years all the material removed will be from the top of refuse pile A in cross section A-A'. However, in cross sections B-B' and C-C', SCA does not show that during the first five years they will remove the material from the top of refuse pile A.

In a submittal received on March 24, 2004, SCA proposes to modify the mining plan. Instead of mining from the top down at refuse pile A, SCA wants to mine the sides of refuse pile A. The reason given in conversations between SCA and the Division is the change will allow for easier truck access.

SCA shows on Map 521.100e2 that the slopes on the active part of refuse pile A will be at 2H:1V. The Division reviewed the safety factor concerns when Plateau Mining built the pile and found that a 2H:1V slopes meet the minimum safety factor requirements.

The Division has a concern about how SCA will maintain the sides of refuse pile A at 2H:1V slopes during mining operations. Plateau Mining placed the refuse in layers so they could maintain the slope design. Removing the material from the sides complicates keeping the slope at a 2H:1V. Therefore, the Division requires SCA to submit detailed mining plans.

SCA will use a standard mobile fleet of excavation equipment that may include all or some of the following: dozers, front-end loaders, end-dump trucks, belly dump haul trucks, scrapers, backhoes, and support equipment.

SCA proposes to use the existing structures and facilities, which the Division approved for use by PMC. They show those structures and facilities on Plate 521.100a, Plate 521.100b and in section 526 of the PAP. The consultant's report found in Exhibit 624.200a recommended sorting, crushing, and blending of the coarse with the fine waste, but the Permittee does not intend to conduct those operations at the site (Division communication with Mr. Rusty Netz, January 6, 2003).

In amendment #1885, SCA proposes to change the requirement to continually sample the material before it leaves the site and meet power plant specification to sampling as needed. Since there is no specific regulatory requirements for testing a product before it leave the site, the Division will approve the change. All materials shipped off site must either be used as a product or disposed of in an approved disposal facility.

Findings:

The information provided does not meet the requirements the Operation Plan Mining Operations and Facilities requirements of the Regulations. Before approval SCA must provide the following information in accordance with:

R645-301-523, SCA will give the Division detailed plans on how the mined slopes will be kept at an angle not steeper than 2H:1V. The Division wants SCA to provide plans on how they will prevent highwalls/cutslopes from being created.

R645-301-521.141, SCA will revise Map 521.100e2 so that it shows a consistent mine plan. The cross-sections are not consistent because they show top-down mining in cross-section A-A' in the first five years but in cross-sections B-B' and C-C' PMC proposed side mining technique.

R645-301-521.140, SCA must give the Division a mining plan that shows how SCA plans to mine the refuse pile. The mine plan shown on Plate 521.100e is different than the plan shown on Plate 521.100e2. If SCA wants to modify the mine plan, they can do so at any time.

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

Analysis:

The Applicant does not plan to relocate or use any public roads that are within the permit boundary. However, SCA does plan to conduct mining operations with 100 feet of the right-of-way of a public road. In Section 526.116 of the Pap, the Applicant states that the public will be protected from mining operations that occur within 100 feet of the County Road by:

- Maintaining stable slopes in the permit area.
- Removing debris from the road and culvert
- Not cutting any steep cut slopes or altering an natural drainages
- Posting stop signs to all entrances to the County Road.

The Division does not have specific standards for how SCA will conduct mining within 100 feet of a public road. The measures taken by the Applicant are similar to those at other mines and specifically when Plateau Mining was operating the facility. Therefore, the Division considers those actions sufficient to protect the public.

After SCA started operations, the Division noticed that trucks leaving the site would sometimes have refuse material on the truck tires. When the trucks left the site the material on the tires would be deposited on the County Road. The material on the County Road is an off site impact and the Division instructed the SCA to correct the problem.

In the submittal received on March 24, 2004 (amendment 1885) SCA proposed to remove any material from the County Road. The Division does not consider that solution adequate. Other operators are required to install devices to remove material from tires before vehicles enter a public road.

One solution is to install modified cattle guards so that the material could drop off the tires before the reached the road. Other solutions include wash bays and paved roads within the disturbed area.

Findings:

The information in amendment 1885 PAP is not adequate to meet the minimum requirements of this section of the regulations. Before the Division approves the amendment SCA must provide the following in accordance with:

R645-301-526.116.1, SCA must implement a program that will remove refuse material from tires before they reach the County Road.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Applicant proposes to ship coal refuse from the site to a cogeneration facility. At the cogeneration facility, the Applicant will burn the coal refuse to generate electricity. Given the nature of the material and the local markets the only foreseeable use of the refuse material is to burn the material in a cogeneration facility. The only other option is to bury the refuse material at the current location.

An exploration program in 2001 by Miltech Energy Services of Lingonier, Pennsylvania (Exhibit 624.200a), provides information on the quality, size, volume and density of the raw material. The report indicates that there are 4.7 million cubic yards of refuse, with an average density of 105-lbs/cu ft (1.42 tons/cu yd). At 12% moisture, the site could yield 7.3 million tons of coal refuse. Average quality of the raw material increases with depths to 8,000 – 9,000 btu/lb. Particles with the greatest heat content are located near the bottom of the pile and represent 30% of the refuse pile. Screening of the large fragments from the pile will improve product quality.

(Two pits are labeled BH-1 on Figure 1-1 of Appendix 624.200a and Drawing No. 01-372-1 of Appendix 624.200a have been correctly labeled on Map 222.100a.).

Findings:

The information provided meets the reporting requirements for Coal Recovery of the Regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Road Classification System

All roads with the possible exception of pit roads must be classified as primary or ancillary roads, R645-301-527.100. The Division considers pit roads to be roads in the active mining section of the refuse pile. The location of pit roads will change as mining progresses. In general, the Division does not require pit roads to be designed.

In Section 527.100-200 of the PAP, the Applicant lists the roads that will be in the permit area and their classification. The list is shown in Table 527.100a.

The primary roads are the existing primary haul road also known as Road H, Road M (a proposed haul road for piles B and C), and Road K (the access road to the subsoil area). The ancillary roads are Road G to Pond 6, Road H to Pond 5, and Road L around Pond 9. The Division agrees with the road classification presented by the Applicant.

In the submittal received on March 24, 2004 (amendment 1885) SCA proposed to add primary road J. The road will access the northeast side of Refuse Pile A and will be used for fuel hauling when mining occurs on the slopes. The road width varies from 20 to 60 feet, with cross slopes for drainage. Road grades vary from level to 12%. The road's surface will be gravel or road base material.

Map 521.100d, SCA/Star Point Waste Fuel Refuse Pile Operation Plan Overview shows the road's location. Map 534.100g shows the detailed road designs. A professional engineer certified both maps.

As mentioned in the relocation or use of public road section of the technical analysis, the Division has concerns about deposits of refuse material on County Road 290. To avoid off site impacts the Division requires SCA to implement a program to remove refuse from vehicle tires before they reach County Road 290. This deficiency was addressed in a previous section; the Division will not repeat the deficiency.

Plans and Drawings

There is one existing primary road and two proposed primary roads. The designs for the Primary Haul Road are shown on Map 534.100e, Table 527.100a, and Section 527.210 of the PAP. In the submittal received on March 24, 2004 (amendment 1885) SCA proposed to add primary road J. SCA showed the designs for primary haul road J on Map 521.100d, SCA/Star Point Waste Fuel Refuse Pile Operation Plan Overview shows the road's location.

The designs for the Primary Haul Road are as follows:

- The Primary Haul Road (Road H) is approximately 12 to 30 feet wide and the grade ranges from 0 to 11%. The road is constructed of dirt. After mining is completed, the road will be reclaimed. Road M will be 10-24 feet wide and the grade ranges from 0 to 10.9%. Road K will be 12-24 feet wide with a grade that ranges from 11.5 to 22.6%.
- The primary haul road (Road J) width varies from 20 to 60 feet, with cross slopes for drainage. Road grades vary from level to 12%. The road's surface will be gravel or road base material.
- The primary roads will not require the alternation of any intermittent or perennial streams or existing natural drainages.

- The primary roads are designed so the all runoff will report to a sediment pond or a ditch.
- Because the primary road designs have to be certified by a registered professional engineer, Scott Carlson, who is a professional engineer, certified the designs.
- The designs did mention that the stability factor for the road embankments is 1.3 or greater.

The Division finds that the designs for the primary roads are adequate to meet the requirements of the R645-301-500 section of the regulations.

The Applicant has identified three existing ancillary roads that will be in the permit area. Those roads are Road G, Road H, and Road L.

The design parameters for Road G are show on Map 534.100f, Table 527.100a and in Section 527.210 of the PAP. Reclamation for the roads is in Section 542.200 of the PAP. The designs for Road G show the following:

- The location and cross-sections for Road G are shown on Map 534.100f. The road will vary in width from 10 to 12 feet and grade ranges from 0 to 14.6%. The road provides access to Pond 6.
- Road G will not require modifications involving intermittent or perennial streams or existing natural drainages.
- Road G is designed so that all runoff will either report to a sediment pond or a ditch.
- The Applicant did state that all private roads within the permit area would be reclaimed. The commitment is stated in section 542.200 of the PAP.

The design parameters for Road H are show on Map 534.100d, Table 527.100a and in Section 527.210 of the PAP. Reclamation for the roads is in Section 542.200 of the PAP. The designs for Road G show the following:

- The location and cross-sections for Road H are shown on Map 534.100f. The road will vary in width from 10 to 12 feet and grade ranges from 0.8 to 12.2%. The road provides access to Pond 5. Note in Section 527.210, the Applicant states that Road H provides access to Pond 6, which is an error.
- Road H will not require modifications involving intermittent or perennial streams or existing natural drainages.
- Road H is designed so that all runoff will either report to a sediment pond or a ditch.
- The Applicant did state that all private roads within the permit area would be reclaimed. The commitment is stated in section 542.200 of the PAP.

The design parameters for Road L are shown on Map 534.100b, Table 527.100a and in Section 527.210 of the PAP. Reclamation for the roads is in Section 542.200 of the PAP. The designs for Road L show the following:

- The location and cross-sections for Road L are shown on Map 534.100b. The road will vary in width from 10 to 25 feet and grade ranges from 0 to 7.3%. The road will be dirt and provide access from the north side of Refuse Pile A to Pond 9.
- Road L will not require modifications involving intermittent or perennial streams or existing natural drainages.
- Road L is designed so that all runoff will either report to a sediment pond or a ditch.
- The Applicant did state that all private roads within the permit area would be reclaimed. The commitment is stated in section 542.200 of the PAP.

Performance Standards

The general performance standards are listed in R645-301-534.140, R645-301-534.150, R645-301-534.200, and R645-301-534.300. The Applicant is required to meet all performance standards.

Primary Road Certification

Plate 534.100a and Plate 534.100e show the general designs for the Primary Haul Road. A registered professional engineer has certified the designs.

Other Transportation Facilities

The Applicant did state that there is a railroad line within the permit boundary that is not under the control of the Applicant.

Findings:

The information provided in the PAP is adequate to meet the minimum requirements of the road and other transportation facilities regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

The Applicant committed to have dumpsters placed in a central location. Periodically, the dumpsters will be emptied and the noncoal waste will be shipped to a state approved landfill. All hazardous wastes will be disposed of in accordance with RCRA.

Coal Mine Waste

Coal mine waste is defined as coal processing waste and underground development waste. Sunnyside Cogeneration Associates will reduce the coal processing/underground development waste by its re-mining operation at the site. The refuse rejected for use by SCA is, by definition, coal mine waste. Operational treatment of the coal mine waste "reject" will follow the requirements of R645-301-536.

The Applicant has indicated that it is logistically impossible to return the "reject" waste to the refuse pile while it is being mined and that only a small amount of coal mine waste and excess spoil is anticipated (Section 528.100). The Applicant proposes to permanently dispose of coal mine waste "reject" material in the former slurry ponds. R645-301-536 allows the Division to approve of the disposal of coal mine waste in excavations in the mined out area.

The Disposal Area is shown on Map 521.100f (Section 528.300-321 and Section 528.322). This map shows the proposed disposal area covering 5.5 acres in a former slurry pond. The application anticipates that the slurry pond location may hold 3.1% of the current volume of refuse or 145,000 CY. The material will be compacted into a 4h:1v slope against the existing topography. The sloping sides of the disposal area will face north, east and southeast. The disposal area is designed for an average height of forty feet deep at the center, with a maximum of 55 feet at its highest point.

During operations, the coal mine waste will be routinely compacted to prevent combustion and wind-borne transport. The application indicates that the coal mine waste will be compacted in four foot lifts to a 4h:1v slope (Map 521.100f) and covered with four feet of material at final reclamation (Section 528.300-321). The application indicates a long-term static safety factor of 3.0 for the disposal site.

Refuse Piles

Two MSHA numbers exist for the site:
-Refuse Pile I.D. # 42-02334
-Coarse Refuse Pile I.D. #1211-UT-09-02334-01.

In the submittal received on March 24, 2004 (amendment 1885) SCA supplied documents from MSHA that stated MSHA inspected the refuse piles and found they meet the requirements for abandonment. Karl Houskeeper from the Division contacted MSHA for clarification on MSHA abandoning the refuse piles. The MSHA personnel indicated that they approved abandonment of the refuse piles. Abandonment includes removing the MSHA I.D. numbers from the piles. However, MSHA did not terminate jurisdiction. MSHA will still inspect the refuse pile twice a year.

To avoid confusion SCA must state in the text that while MSHA did remove the I.D. numbers from the refuse pile and considers the refuse piles abandoned, the site is still under MSHA jurisdiction. Therefore, SCA is still required to meet all MSHA requirements.

The application designates three refuse piles at the site, A, B and C. The refuse piles are shown on several maps including Plate 521.100d and Plate 521.100e. Because of the nature of the project, no additional refuse will be placed on site. The mine plan calls for the refuse to be removed from the piles and sent to a cogeneration facility for burning.

The existing refuse pile was designed and approved in the Star Point MRP. The general requirements for refuse pile design are as follows:

- The refuse pile will be designed using current prudent engineering practices and will meet the design requirements of the Division. The Division has approved the design of the refuse piles as part of the Star Point MRP. Since the Applicant intends to remove material from the refuse piles instead of adding to them, the Division will consider the design of the existing refuse piles adequate.
- The refuse piles must have a static safety factor of 1.5. The stability analysis for the refuse piles is in Exhibit 528.322a. The Applicant proposes to keep the slopes stable by maintaining a slope angle of 2H: 1V.

No additional foundations will be constructed at that site.

Impounding Structures

No impounding structures will be made from coal mine waste.

Burning And Burned Waste Utilization

The refuse piles that have been in existence at the Star Point Mine will be utilized for fuel at the Sunnyside Refuse Cogeneration Plant. If coal mine waste fires erupt during the operation, they will be extinguished by covering or excavating the burning material. According to Section 528.323, soil imported from the Neilson Pit located in Wellington, Utah may be used for this purpose. The applicant does not plan on using salvaged, stockpiled substitute topsoil for this purpose.

The Applicant committed to using only employees trained in handling burning waste material for extinguishing the fires. This plan is similar to those approved by the Division and used by AML for dealing with coal waste fires.

Return of Coal Processing Waste to Abandoned Underground Workings

The Applicant does not propose to place coal-processing waste in underground workings.

Excess Spoil

The Division does not consider refuse reject material as excess spoil, by definition.

The only material to be generated at the site fitting the definition of excess spoil is sediment pond cleanout material. The Applicant states that the disposal area is capable of handling 145,000 cubic yards of material. The amount of sediment pond clean out material will be minor compared to the amount of coal mine waste "reject" material.

Findings:

The information provided is not adequate for the purposes of the Operations Refuse and Spoil and Waste requirements of the Regulations. Before the Division approves the amendment, SCA must provide the following in accordance with:

R645-301-513 and R645-301-513.400, SCA must state in the text and provide reference material as needed; MSHA still has jurisdiction at the site, even if MSHA removed the MSHA I.D. numbers from the refuse piles and declared the refuse piles abandoned.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Affected Area Maps

The affected area should include the areas on which mining and reclamation activities will occur over the life of the mine. For the SCA/Star Point Waste Fuel Refuse Pile those areas should be within the proposed permit boundaries. Several maps show the location of the permit boundaries including maps 521.100a, 521.100b, and 521.100c. A professional engineer certified all the maps.

Mining Facilities Maps

The mining facilities are shown on several maps including maps 521.100a, 521.100b, and 521.100c. A professional engineer certified all the maps.

Mine Workings Maps

Due to the nature of the project, detailed mine maps are not needed. Mining will consist of removing coal mine waste (refuse) from the refuse piles and shipping it to a cogeneration facility. What the Division is interested in is the configuration of the refuse piles before mining and the configuration after mine. The after mining configuration is shown on the reclamation maps, 542.200a and 542.200b. A professional engineer certified all the maps.

Map 521.100e and Map 521.100e2 are not consistent. The two maps show two different mine plans. To avoid confusion SCA must have one mine plan. This issue was discussed in the mine plan section of the TA and the deficiency will not be repeated here.

Monitoring and Sampling Location Maps

Subsidence monitoring is not applicable to this operation. No ground water monitoring will take place. Surface water monitoring other than UPDES monitoring will not be conducted, because there is no surface water sources on the proposed permit area. Raptor activity will be monitored and is shown on Wildlife Habitat map # 322.220a.

Certification Requirements

All maps submitted by the Applicant that need certification have been certified.

Findings:

The information provided in the PAP is adequate to meet the minimum requirements of the maps, plans, and cross-sections requirements for this section of the regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

Form of Bond

The Permittee will post collateral bonds (R645-301-860.200).

Determination of Bond Amount

The Division reviewed the information for reclamation cost estimates in Exhibit 830.100a of the Application. The calculated bond amount is $1,254,000, as stated on page 800-2 of the Application. SCA posted the bond before the Division granted the permit.

The proposed changes in amendment 1885 will not alter the bond calculations.

Terms and Conditions for Liability Insurance

SCA acquired the proper liability insurance before the Division issued the permit.

Findings:

The information provided meets the Bonding and Insurance requirements of the Regulations.

RECOMMENDATIONS:

Prior to approval, the requirements of Utah coal rules must be provided as outlined above.

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